

ASTROMETRY VLBI IN SPACE (AVS)

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A proposal for a new space radio astronomy mission for astrometry, using Very Long Baseline Interferometry (VLBI), called Astrometry VLBI in Space (AVS), is described. The nominal mission includes two identical spacecraft, each equipped with one a 4-meter antenna with four receivers, nominally for 8-9 GHz, 22-24 GHz, 32 GHz, and 44-48 GHz and 70m ground antenna. The ultimate goals of AVS are improving the accuracy of radio astrometry measurements to the microarcsecond level in one epoch of measurements and improving the accuracy of the transformation between the inertial radio and optical coordinate reference frames. This paper will also describe the impact of these improvements on astrophysical, astrometric, and geodetic applications.

The proposed radio astrometry mission, if implemented in the time frame 2000-2005, can also be a valuable complement to the new generation of optical astrometry missions that are to be launched in the same period of time.